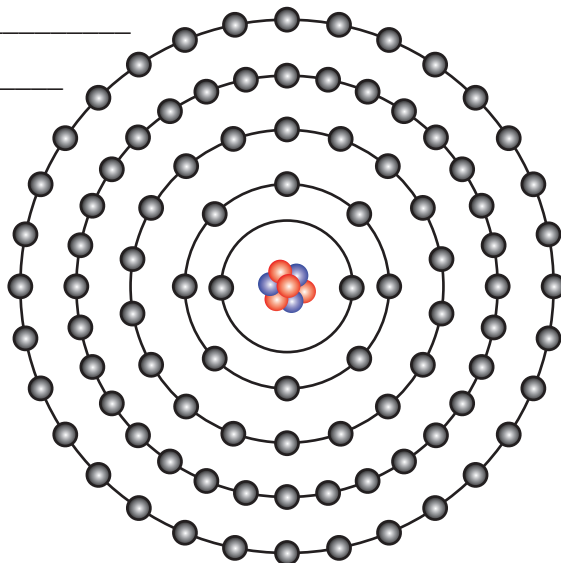


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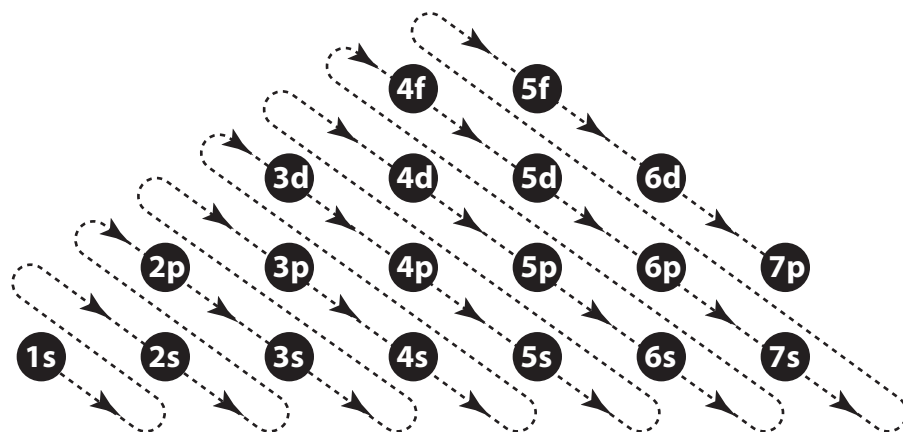
Period: \_\_\_\_\_ Table: \_\_\_\_\_



### Bohr Model

1st Energy Level	2 electrons
2nd Energy Level	8 electrons
3rd Energy Level	18 electrons
4th Energy Level	32 electrons
5th Energy Level	32 electrons
6th Energy Level*	18 electrons
7th Energy Level*	8 electrons

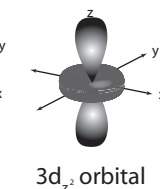
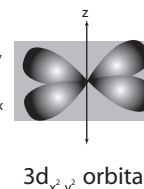
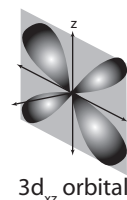
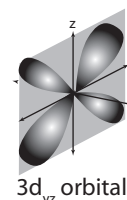
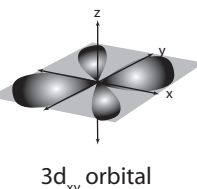
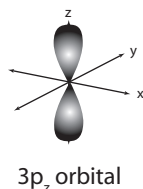
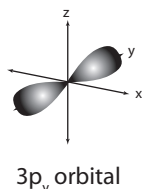
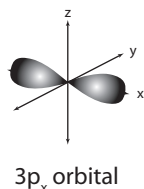
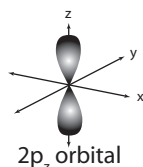
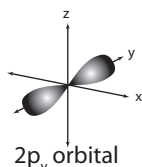
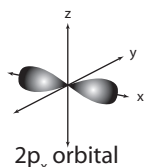
\* Not shown



### Electron Configuration Aufbau Principle

s = 2 electrons  
p = 6 electrons  
d = 10 electrons  
f = 14 electrons

1s - 2s - 2p - 3s - 3p - 4s - 3d - 4p - 5s - 4d - 5p - 6s - 4f - 5d - 6p - 7s - 5f - 6d - 7p ⇒ Electron filling order



### Orbital Shapes

Pauli Principle  
Each orbital holds 2 electrons



1s orbital



2s orbital



3s orbital



4s orbital



2p orbitals



3p orbitals



4p orbitals



3d orbitals

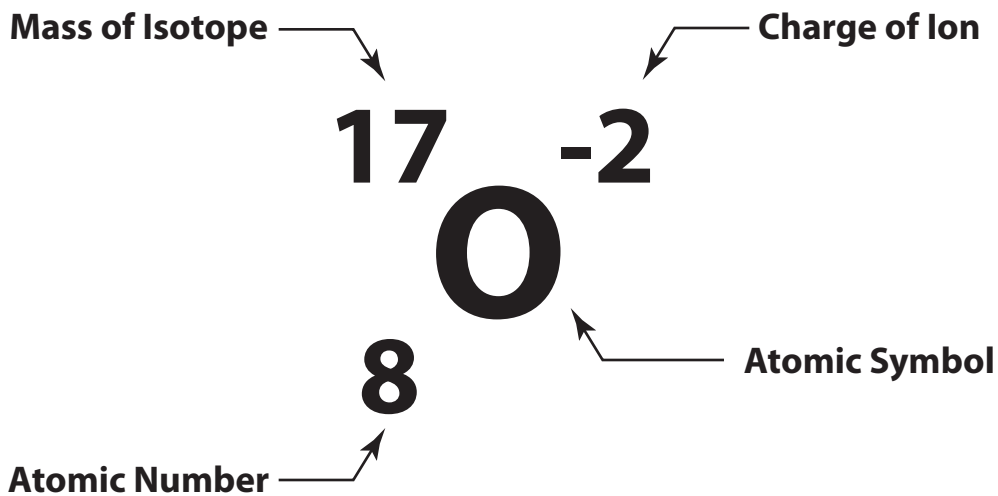


4d orbitals

### Example of Electron Spin for Iron

### Electron Spin

Hund's Rule  
An electron will fill each energy level orbital before it fills the alternate spin in the same energy level and orbit



### Nuclide Symbol

#### **Mass of Isotope**

Number of  $p^+$  and  $n^0$   
Is NOT Atomic Mass

#### **Atomic Number**

Number of  $p^+$   
Identifies Element

#### **Charge of Ion**

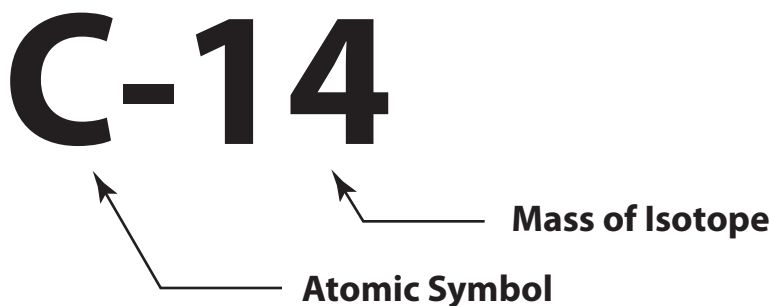
If negative, gained electrons  
If positive, lost electrons  
If blank, neutral Atom

Number of  $p^+$  = Atomic Number (Bottom)

Number of  $n^0$  = Mass of Isotope - Atomic Number (Top minus Bottom)

Number of  $e^-$  = Change sign of Ion add to Atomic Number

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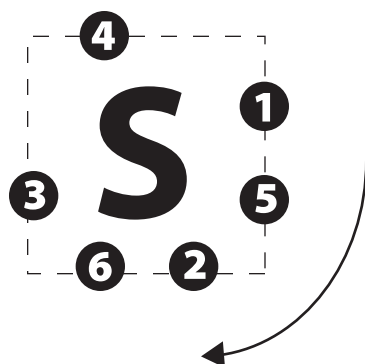
### Isotope Symbol

#### **Atomic Symbol hyphen**

#### **Mass of Isotope**

Number of  $p^+$  and  $n^0$   
Is NOT Atomic Mass

---



### Lewis Dot Diagram

Shows number and orientation of valence electrons ( $ve^-$ ) only  
**Maximum of 8  $ve^-$**

#### Note placement of dots:

1 per side starting at 3 o'clock  
rotatin clock-wise